Serial No.: 10/693,217
Group Art Unit: 2811

AMENDMENTS TO CLAIMS

- Please delete claims 16, 17, and 21.
- Please amend pending claims 12, 14, and 18 as indicated below.
- Please add new claims 23-28.
- A complete listing of all claims and their status in the application are as follows:

Claims 1-11 (cancelled)

12. (currently amended) An Integrated Circuit package structure, comprising:

an Integrated Circuit device, having a top surface and a bottom surface, electrical contact points to said Integrated Circuit device are mounted in the bottom surface of said Integrated Circuit device;

a heatsink for said Integrated Circuit device having a flat bottom surface extending past the Integrated Circuit device by a first distance, the flat bottom surface contacting the top surface of said Integrated Circuit device;

a substrate having a flat upper surface and a lower surface, the flat upper surface extending past the Integrated Circuit device by the first distance and having points of electrical contact to said Integrated Circuit device, the lower surface having points of electrical contact for further interconnect of said substrate to surrounding circuitry or components, the upper and lower surfaces extending beyond the bottom surface of said Integrated Circuit device; ~~and~~

a molding compound for insertion into said cavity between the flat bottom surface of the heatsink and the flat upper surface of the substrate to fill only the first distance, said molding compound among the points of electrical contact to said Integrated ~~Circuit.~~Circuit device; and

a plurality of Integrated Circuit devices spaced a third distance apart, the third distance greater than two of the first distances.

13. (original) The Integrated Circuit package structure of claim 12 wherein said Integrated Circuit device is selected from a group comprising Ball Grid Array (BGA), Land Grid Array (LGA) and Pin Grid Array (PGA), Chip Scale Packaging (CSP) and Quad Flat Pack (QFP) devices.

14. (currently amended) The Integrated Circuit package structure of claim 12 wherein:

the flat bottom surface of said heat sink extends past said Integrated Circuit device by a second distance, the second distance is less than the first distance and is perpendicular to the first distance; and

said molding compound extends past the second distance of said heatsink and is coplanar with the top surface of said heatsink, the flat bottom surface of the heat sink extends past said Integrated Circuit device by a second distance, the second distance less than the first distance; ~~andsaid~~ and

said molding compound extends only to the second distance of the heatsink.

15. (previously presented) The Integrated Circuit package structure of claim 12 wherein said substrate comprises;

electrical contact points in said lower surface, forming substrate lower surface contact points, provided to make electrical contact with surrounding electrical circuitry of which said IC device is a functional component; and

a network of interconnect lines that interconnects said substrate upper surface contact points with said substrate lower surface contact points, said network to be contained in one or more planes within said substrate.

16. (canceled)

17. (canceled)

18. (currently amended) The Integrated Circuit package structure of claim ~~17~~ 12 wherein said molding compound bonds said heatsink and said substrate.

19. (previously presented) The Integrated Circuit package structure of claim 12 wherein:

the flat bottom surface of the heat sink extends past said Integrated Circuit device by a second distance, the second distance less than the first distance; and

said molding compound fills only the second distance between said heatsink and said substrate.

20. (previously presented) The Integrated Circuit package structure of claim 12 wherein said molding compound is a material cured by UV light.

21. (canceled)

22. (canceled)

23. (new) An Integrated Circuit package structure, comprising:

an Integrated Circuit device, having a top surface and a bottom surface, electrical contact points to said Integrated Circuit device are mounted in the bottom surface of said Integrated Circuit device;

a heatsink for said Integrated Circuit device having a flat bottom surface extending past the Integrated Circuit device by a first distance, the flat bottom surface contacting the top surface of said Integrated Circuit device, the flat bottom surface of the heat sink extends past said Integrated Circuit device by a second distance, the second distance less than the first distance;

a substrate having a flat upper surface and a lower surface, the flat upper surface extending past the Integrated Circuit device by the first distance and having points of electrical contact to said Integrated Circuit device, the lower surface having points of electrical contact for further interconnect of said substrate to surrounding circuitry or components, the upper and lower surfaces extending beyond the bottom surface of said Integrated Circuit device; and

a molding compound for insertion into said cavity between the flat bottom surface of the heatsink and the flat upper surface of the substrate to fill only the first distance, said molding compound among the points of electrical contact to said Integrated Circuit; said molding compound fills only the second distance between said heatsink and said substrate.

24. (new) The Integrated Circuit package structure of claim 23 wherein said Integrated Circuit device is selected from a group comprising Ball Grid Array (BGA), Land Grid Array (LGA) and Pin Grid Array (PGA), Chip Scale Packaging (CSP) and Quad Flat Pack (QFP) devices.

25. (new) The Integrated Circuit package structure of claim 23 wherein:

the flat bottom surface of said heat sink extends past said Integrated Circuit device by a second distance, the second distance is less than the first distance and is perpendicular to the first distance; and

said molding compound extends past the second distance of said heatsink and is coplanar with the top surface of said heatsink; and

said molding compound extends only to the second distance of the heatsink.

26. (new) The Integrated Circuit package structure of claim 23 wherein said substrate further comprises:

electrical contact points in said lower surface, forming substrate lower surface contact points, provided to make electrical contact with surrounding electrical circuitry of which said IC device is a functional component; and

a network of interconnect lines that interconnects said substrate upper surface contact points with said substrate lower surface contact points, said network contained within said substrate.

27. (new) The Integrated Circuit package structure of claim 23 wherein said molding compound bonds said heatsink and said substrate.

28. (new) The Integrated Circuit package structure of claim 23 wherein said molding compound is a material cured by UV light.